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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,768	08/31/2001	Kazuya Uenishi	Q66050	9208

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EXAMINER	
WALKE, AMANDA C	

ART UNIT	PAPER NUMBER
1752	

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/942,768	UENISHI, KAZUYA	
	Examiner	Art Unit	
	Amanda C Walke	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 August 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2,11-18 and 20* is/are allowed.

6)☒ Claim(s) *1,3-10 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1, 3, 5-10, and 19 are rejected under 35 U.S.C. 102(a) as being anticipated by Adegawa (JP 2001-174995) in view of its English language machine translation.

Adegawa discloses a chemically amplified negative resist composition for x-ray or electron beam exposure. The composition comprises an alkali soluble resin having an average molecular weight of preferably 3,000 to 100,000 (those employed in the examples are in the 8,000-14,000 range) and a molecular weight distribution of 1.0-1.5 ([0044] and [0045], present claims 9 and 10), a cross-linking agent which is preferably a phenol derivative ([0053], present claim 6), a photoacid generator, an organic basic compound ([0102]-[0108], present claim 7), a mixture of solvents comprising propylene glycol monomethyl ether acetate and propylene glycol monmethyl ether ([0109]), and a surfactant that preferably comprises either a fluorine atom or silicon atom ([0110] present claim 8). The photoacid generators disclosed by the reference are identical to those disclosed as being preferred by the instant specification, as are the cross-

linking agents. The resin composition of the reference results in the advantages of increased sensitivity and resolution, and increased shape characteristics after being irradiated with electron beams or x-rays then developed to form the pattern (see abstract and examples such as in [[0144]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3-10, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uenishi et al (EP1117002) in view of Kobayashi et al (EP 634696).

Uenishi disclose a chemically amplified negative resist composition for x-ray or electron beam exposure. The composition comprises an alkali soluble resin identical to that claimed by the present claims 3 and 4 having an average molecular weight of preferably 2,000 to 9,000 and a molecular weight distribution of 1.0-1.5 (pages 3 and 17 and 18, claims 1-3, 8, and 9 of the reference, present claims 9 and 10), a cross-linking agent which is preferably a phenol derivative (pages 49-54 and claim 5, present claim 6), a photoacid generator (claim 4 and pages 43-49), an organic basic compound (pages 55 and 56, present claim 7), and a surfactant that preferably comprises either a fluorine atom or silicon atom (page 57 and claim 7, present claim 8). The photoacid generators disclosed by the reference are identical to those disclosed as being preferred by the instant specification, as are the cross-linking agents. The resin composition of the reference results in the advantages of increased sensitivity and resolution, and increased

shape characteristics after being irradiated with electron beams or x-rays then developed to form the pattern (see abstract and examples such as in [[0147]). On page 57 of the reference, it is taught that the solvents preferred for use in the composition include propylene glycol monomethyl ether acetate and propylene glycol monomethyl ether,ethyl lactate, methyl ethyl ketone, γ-butyrolactone, and 2-heptanone, and that the solvents may be employed singly or in combination. However, the reference fails to teach or suggest any specific combinations of solvents.

Kobayashi et al disclose a chemically amplfied positive or negative resist composition that is suitable for pattern-forming using x-rays or electron beams (page 2, lines 1-16). The reference teaches that a preferred solvent system for use in negative compositions includes a mixture of alkyl lactate, propylene glycol monomethyl ether acetate and propylene glycol monomethyl ether (page 9, lines 5-11). The resultant resist composition exhibits excellent storage stability, high sensitivity, and excellently shaped patterns (page 2, lines 39-47).

Given the teaching of Kobayshi et al for preferred solvent systems for chemically amplified negative resist compositions and the teachings of suitable solvents by Uenishi et al, it would have been obvious to one of ordinary skill in the art to prepare the resist composition of Uenishi et al choosing to use the solvent mixture of alkyl lactate, propylene glycol monomethyl ether acetate and propylene glycol monomethyl ether taught by Kobayashi et al to achieve excellent storage stability, high sensitivity, and excellently shaped patterns with reasonable expectation of achieving a negative resist composition having increased sensitivity and resolution, and increased shape characteristics after being irradiated with electron beams or x-rays.

Allowable Subject Matter

6. The following is a statement of reasons for the indication of allowable subject matter: The present claims 2, 11-18, and 20 are indicated as containing allowable subject matter. The examiner has performed a search of the prior art of record and considered the references listed in the European search report, but no reference taught or suggested a combination of solvents which includes one compound from each of the presently claimed groups A, B, and C.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vicari et al (5,342,727), Iwanaga et al (JP 10-254135) and its English language translation of JP 10-254135, and Brock et al (US 2002/0146639) are cited for their teachings of similar solvent systems.

Adegawa (6,528,233) is cited as being cumulative to the Adegawa references described above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda C Walke whose telephone number is 703-305-0407. The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on 703-308-2303. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Amanda C Walke
Examiner
Art Unit 1752

ACW
August 24, 2003